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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,887	03/30/2001	Michael P. Dallmeyer	051252-5188	4450

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EXAMINER

KENNY, STEPHEN

ART UNIT PAPER NUMBER

3726

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,887

Applicant(s)DALLMEYER ET AL. **Examiner**

Stephen J Kenny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kummer (International Publication Number WO 00/43666) in view of Simandl et al (US Patent No 5803983).

Regarding claims 1, 6, & 15, Kummer discloses forming a fuel injector comprising a fuel group (or “hydraulic metering subassembly” 12) & power group (14) subassembly separate from one another; and prior to assembling the fuel group, assembling a fuel tube including an inlet tube & non-magnetic shell (page 4, lines 13+); and a power group (14) comprising a magnetic housing attached to a solenoid coil; inserting the fuel group (12) into the power group (14); and fixedly connecting the two subassemblies (page 5, lines 19-20).

Regarding claims 2-5, 7, 8, 13, 18, 19-21, 24-33, 38 Kummer discloses performing a fuel flow test on the fuel group (14) (separate from or outside the clean room as discussed below) prior to inserting the fuel group into the power group (page 2, lines 9-11); and inserting/securing (via welding) the fuel group to the power group outside of the fuel group manufacturing area.

Regarding claims 11, 12, 36, & 37, Kummer discloses inserting a filter (68) and an armature into the fuel tube assembly (Figure 13 & page 7, lines 5+).

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Regarding claims 14, & 39, Kummer discloses the non-magnetic shell is inserted prior to the inlet tube (page 4, line 24+ & Figures 1-11).

Regarding claims 16, & 22, Kummer discloses connecting an electrical terminal to the solenoid coil on the power group (page 5, lines 16+).

Regarding claims 17 & 23, Kummer discloses overmolding the power group (page 7, lines 7-12).

Kummer does not explicitly disclose providing a clean room, and fabricating said fuel group in said clean room.

Regarding claims 1, 6, & 15, Simandl discloses fabricating fuel injectors in clean room environments (column 1, lines 50+). The use of clean rooms is advantageous in that it helps prevent any FOD (Foreign Object Debris) from contaminating the fuel injector thereby preventing malfunction.

Regarding claims 9, 10, 34, & 35, Simandl discloses washing the fuel tube (column 2, lines 28-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a fuel injector of modular components (i.e. a fuel group & power group) wherein each group is fabricated separately as disclosed by Kummer (for the reasons set forth on page 2, lines 2-5), while performing fabrication/washing of the fuel group in a clean room as taught by Simandl in order to reduce the number of injector malfunctions while minimizing the manufacturing costs. Furthermore, due to the fact that the power group and fuel group sub-assemblies are formed in separate environments as disclosed by Kummer (page 4, lines 9-12), it is inherent that in order to combine the

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two sub-assemblies, one of said sub-assemblies would have to be removed from its manufacturing environment. It would have been an obvious matter of design choice to perform the flow test, inserting, & connecting steps exterior of the clean room, since applicant has not disclosed that performing these steps exterior of the clean room solves any stated problem or is for any particular purpose, and it appears that the invention would perform equally well with the above mentioned steps being performed inside the clean room.

Response to Arguments

Applicant's arguments filed 5/13/04 have been fully considered but they are not persuasive.

Applicant has put forth the argument that the above U.S.C. 103 rejection is improper due to the references failing to teach the claimed invention. Applicant asserts that the Simandl reference teaches manufacturing & assembling of the entire fuel injector in a clean room. However Simandl explicitly discloses that the manufacturing process disclosed may apply to only "partially assembled mechanisms" (column 1, line 14).

Alternatively, the Simandl reference is not relied upon to teach separate manufacturing environments. As the base reference of Kummer states, "by having two independent subassemblies, costly production operations are eliminated" (page 2, line 2); thereby explicitly disclosing manufacturing sub-assemblies of a fuel injector in separate environments. Thus the Kummer reference is relied upon to teach separate manufacturing environments, while the Simandl reference is relied upon to teach the use

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of a clean room for one of said environments. Given the starting point of the Kummer reference, an artisan of ordinary skill would not read the Simandl reference to teach manufacturing of all fuel injector sub-assemblies in a clean room. In fact to combine the references in this way would completely contradict the main goal of the Kummer reference (i.e. to obtain manufacturing flexibility & reduce costs).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J Kenny whose telephone number is 703-306-0359. The examiner can normally be reached on mon - fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sk SK
8/11/04

A handwritten signature in black ink, appearing to read "David Bryant", written in a cursive style.

DAVID P. BRYANT
PRIMARY EXAMINER